

**"Seal, Robert" <rseal@usgs.gov>**

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**From:** "Seal, Robert" <rseal@usgs.gov>  
**Sent:** Wed Dec 19 2012 09:13:54 GMT-0700 (MST)  
**To:** "Grismala, Ralph" <Ralph.Grismala@icfi.com>  
**Subject:** Re: BBA WTP Concentrations

Ralph,

Sorry for taking so long getting back, but the standard procedure specifies 0.45 um filtration.

Bob

On Wed, Dec 12, 2012 at 8:46 PM, Grismala, Ralph <[Ralph.Grismala@icfi.com](mailto:Ralph.Grismala@icfi.com)> wrote:

Bob,

The Pebble EBD does not seem to clarify if the reported humidity cell results are dissolved metals or total metals.

I found the following quote online "The operation of humidity cells is straightforward and can be significantly automated with the use of peristaltic pumps and timers. An initial flushing of the cell is conducted by adding 750 ml (for a 1 kg sample cell) de-mineralised water to the top of the cell so that the sample is thoroughly wetted. After a period of 2 hour (4 hour for tailings samples) the leachate is collected, weighed (for volume determination) and analysed for pH,

conductivity, acidity, alkalinity, sulphate and **dissolved metals.**" (Mills, 1998)

Can you confirm whether HCT results are dissolved metals or total metals?

Ralph

**RALPH GRISMALA, P.E.** | +1.860.599.3534 direct | [ralph.grismala@icfi.com](mailto:ralph.grismala@icfi.com) | [icfi.com](http://icfi.com)

**ICF INTERNATIONAL** | 70 Timber Ridge Dr., Pawcatuck CT 06379 | +1.860.886.3788 mobile

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**From:** Churchill, Caitlin  
**Sent:** Wednesday, December 12, 2012 9:41 PM  
**To:** Bauer, David  
**Cc:** Grismala, Ralph

**Subject:** RE: BBA WTP Concentrations

There is a section in Chapter 11 that compares analytical methods (11.7.1.1) that perhaps someone more familiar with these analytical methods may be able to decipher better than I can. The file is far too large to send to someone, such as Wendy or Dean, but would it be worthwhile to perhaps extract the relevant pages from the pdf to forward to them?

Are you able to find any additional, more succinct info on analytical methods?

Caitlin Churchill

Research Assistant

617-250-4391

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**From:** Bauer, David  
**Sent:** Wednesday, December 12, 2012 1:14 PM  
**To:** Churchill, Caitlin  
**Cc:** Grismala, Ralph

**Subject:** RE: BBA WTP Concentrations

I think that somewhere there is a listing of the analytical methods PLP used. If not in the volumes that I sent you, then might be somewhere else and I can check. If we had a list of the methods, Dean or Wendy might know whether filtering is part of the method or not. And there are other folks in the west that I could check with if they don't know.

David Bauer

ICF International

703-934-3697

---

**From:** Churchill, Caitlin

**Sent:** Wednesday, December 12, 2012 1:09 PM

**To:** Grismala, Ralph; Bauer, David

**Subject:** RE: BBA WTP Concentrations

I did my best to look through the sources to determine if the data was total or dissolved, but wasn't too successful. As I am not familiar with these tests or data sets, it wasn't always clear to me whether the data presented was total or dissolved. The text highlighted in blue (in this case, all data sets but one...) denotes the data sets for which I took an educated guess based on the text, notes, and some quick google searches. The one that I am sure on explicitly stated in the notes for the table that the data presented were dissolved concentrations.

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**From:** Grismala, Ralph

**Sent:** Wednesday, December 12, 2012 10:51 AM

**To:** Bauer, David

**Cc:** Churchill, Caitlin

**Subject:** FW: BBA WTP Concentrations

David,

I do not know if all of Caitlin's data is total or dissolved. I will be unable to look at this for at least a few hours, so if Caitlin has time to check and to document each data sheet, that would be helpful. I have attached the latest version of the file, so I suggest she starts with that copy.

Ralph

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**From:** Grismala, Ralph  
**Sent:** Wednesday, December 12, 2012 1:49 PM  
**To:** Phil North; Barbara Butler; Bob Seal ([rseal@usgs.gov](mailto:rseal@usgs.gov))  
**Subject:** FW: BBA WTP Concentrations

FYI ... BBA Concentration file discussed in separate email.

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**From:** Grismala, Ralph  
**Sent:** Wednesday, December 12, 2012 10:52 AM  
**To:** Glenn Suter ([suter.glenn@epamail.epa.gov](mailto:suter.glenn@epamail.epa.gov)); Blair, Greg  
**Cc:** Bauer, David; Churchill, Caitlin; Rice, James; Seville, Steven; Kate Schofield ([Schofield.Kate@epamail.epa.gov](mailto:Schofield.Kate@epamail.epa.gov)); Jeff Frithsen ([Frithsen.Jeff@epamail.epa.gov](mailto:Frithsen.Jeff@epamail.epa.gov))  
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Glenn,

The attached file contains data related to the concentrations of metals and TDS in the component and blended flows that could pass through the WTP. See the bold values on sheet WTP. These values do not include any stream dilution.

I'll send more detailed explanations later.

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**"Grismala, Ralph" <Ralph.Grismala@icfi.com>**

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**From:** "Grismala, Ralph" <Ralph.Grismala@icfi.com>  
**Sent:** Wed Dec 19 2012 10:18:22 GMT-0700 (MST)  
**To:** "Seal, Robert" <rseal@usgs.gov>  
**Subject:** RE: BBA WTP Concentrations

Bob,

OK, thanks. We are treating the HCT data as dissolved concentrations.

Ralph

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